National Electrical Manufacturers Association

The association of electrical equipment
and medical imaging manufacturers
www.nema.org

September 5, 2024

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
45 L Street NE
Washington, DC 20554

**Submitted Electronically To:** Electronic Comment Filing System (ECFS) at https://www.fcc.gov/ecfs

Re: WT Docket No. 24-240: NextNav Inc. Petition for Rulemaking re: Lower 900 MHz Band

Dear Ms. Dortch:

The National Electrical Manufacturers Association (NEMA) represents over 300 electrical equipment and medical imaging manufacturers that make safe, reliable, and efficient products and systems. Together, our members contribute 1% of U.S. GDP and directly provide nearly 460,000 American jobs, contributing more than $250 billion to the U.S. economy. Learn more at www.nema.org.

Members of the NEMA Lighting Systems Division and other NEMA member companies equipping the built environment and grid sectors write in strong opposition to the NextNav Inc. ("NextNav") petition for rulemaking requesting that the Commission initiate a proceeding to reconfigure the 902-928 MHz band (lower 900 MHz Band) and adopt new rules for its purposes and benefit.

NEMA members are incumbents in these allocated frequencies. We urge the Commission to deny the NextNav petition on the following grounds, and we ask the Commission to carefully consider the comments submitted by both the U.S. Chamber of Commerce and the Consumer Technology Association. Both organizations have echoed many of NEMA members' concerns.

## Lower 900 MHz Band Communications are Integral to Modern Lighting Systems

Unlicensed operators in the lower 900 MHz band have introduced a wealth of valuable technologies to the consumer, commercial, outdoor, and industrial lighting markets for both new construction and building retrofits. These radio-connected lighting control technologies enhance the dramatic energy efficiency improvements made possible with retrofit solid-state lighting technologies, most commonly LEDs or light-emitting diodes, by enabling the reduction of operating time and power consumption (e.g. with dimming). Substantial federal, state, and electric utility investments are continuing to drive adoption of LED products with complementary lighting control systems.

New construction and retrofit projects employ lighting control systems leveraging these frequency allocations for projects of all sizes. Large commercial real estate projects including entire skyscrapers are now commonly outfitted with lighting control systems that rely on access to the lower 900 MHz band to enable secure communications between lighting control devices and other building systems. Lighting control systems communicate occupants' control commands, but also transmit life safety system data, and performance data regarding room occupancy, temperature, and humidity. These data are crucial to the proper functioning of heating, ventilation and air conditioning (HVAC) systems, and lighting systems, and inherent to building owners' and occupants' ability to control energy usage.

These lighting control systems are also fundamental to electric utilities' ability to reduce peak load in a timely manner through electrical demand response capabilities. Demand response systems enable electric utilities to avoid blackouts when grid demand threatens to exceed market supply.

Lighting manufacturers and property owners have no ability to modify the frequencies used by the installed base of lighting control systems. If the NextNav proposal were to be implemented, every installed device affected would need to be recalled and replaced by a licensed electrician.

## Too Late to Reallocate

NEMA member lighting companies have shipped tens of millions of lighting control system components that rely on the subject frequency allocations. Recalling and replacing tens of millions of components critical to the safe and efficient operation of millions of square feet of commercial, industrial and residential real estate is simply untenable. In addition to the cost of the replacement components themselves, the labor costs would be astronomical and would occur at a time when the skilled labor market is already seriously strained with no expectation of improvement in the coming years.

To produce the replacement goods, the added costs for redesign, safety and performance retesting, and recertification across entire product portfolios would be massive, with no perceptible benefit to consumers and end users. These costs would likely far exceed what manufacturers can afford to absorb.

## Industrial IoT Systems Rely on Lower 900 MHz Band Allocations

The lower 900 MHz band is also used by more than 120 million industrial internet-of-things (IoT) devices[1] and systems essential to critical grid infrastructure. These include technologies such as Distribution Automation Systems and Advanced Metering Infrastructure. These technologies detect and report power outages, help identify live wires, detect code violations and outages caused by fire, and help to enable energy efficiency and grid stability. Overall, they serve to enhance the electric grid's security, reliability, and resilience, and enable the energy transition from traditional generation sources to renewable generation including wind and solar. To meet climate change mitigation goals, these projects must move forward posthaste; the proposed frequency reallocation would create multi-year delays in new construction while disrupting the operation of in-service equipment.

Rearranging this band would have ripple effects on a significantly large base of installed equipment requiring product recalls, restructuring of existing customer networks, and implementing significant changes to existing utility rate bases that serve as the basis for billing customers' electricity usage. Notably, most electric utilities are mandated to provide a 20-year life span for these types of devices in their customer rate base, and a substantial portion of this equipment was installed only in the past several years.

In addition, there are millions of 900 MHz endpoints both proprietary and standards-based deployed in large scale outdoor applications such as utility SCADA systems, wastewater monitoring and processing stations, potable water towers, streetlights, electric, gas and water meters (AMR), oil and gas processing and distribution monitoring, agriculture, and many others. Approval of the changes petitioned by NextNav would require cities and towns to spend millions of dollars to migrate their existing systems to different technologies. This is a heavy and seemingly unnecessary burden to urban and rural communities both financially and organizationally in replacing existing systems which are currently meeting application needs. For some of these applications, viable alternatives may not even be available.

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[1] Navigant Research, AMI Gold Standards Report: An Assessment of the Smart Electric Metering Landscape. 2019.

**NextNav Offers No Viable Solutions to Address Incumbent Concerns**

The NextNav petition offers no workable solutions to these predictable outcomes. The petition includes no indication of technical solutions beyond requiring the aforementioned products to be obsoleted and replaced. NextNav has apparently not pursued an international agreement with Mexico and Canada to align the ISM bands with our largest shared markets. Further, the petition includes no agreement with ITU to coordinate a global 900 MHz ISM band change to avoid interference and communication clashes from and with global products. ITU established this segment in coordination with International Amateur Radio Union Region 2 (IARU R2) to allocate frequencies in North, Central and South America. The proposed power levels and loosely defined emission properties would disrupt these agreements and require coordination between bordering countries.

Given the substantial disruptions to existing communications, and the notable limitations of this petition, we see no basis for FCC to grant the NextNav petition, and request that it be denied.

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We thank the Commission in advance for its careful consideration of these concerns. NEMA members are available for consultation on the issues presented above. To coordinate further discussion and address any questions, please contact me at alex.baker@nema.org.

Regards,

Alex Baker
Director, Regulatory & Industry Affairs